

Significant Things & Significant Use

- A self report study on objects of experiences with things

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Abstract: Things thrill and delight, but also elicit frustration. To take experiences into consideration in product development there is a need to identify what they are directed at and what elicits them, i.e. their objects and antecedents. Self-reports collected from 51 participants covering 298 examples of emotions with things were analysed in order to identify what people find significant in experiences with every day products. The object of reactions and judgements was frequently something beyond the product and participants also described use, ideas and events as significant. In many cases the reported experiences focused on situations and events rather than the product as such. While use, ideas and events all constitute antecedents of experiences, they can also become objects of experiences at certain points of time and it may be possible to scaffold for them in design.

Key words: *Significant Things, Significant Use, Self-reports, User experience*

1 Introduction

Things thrill, delight and frustrate. Experiences with products gain increased attention, partly based on commercial arguments [1-3]. Taking them into account in the creation of new things may potentially contribute to the well-being of users. However, addressing them in product development (PD) poses some challenges as an experience refers to how something is reflected in the consciousness of a specific actor, and as developers and users typically relate to products differently [4,5].

Experiences can be more or less acute or dispositional. In the specific case of emotions, they can be characterised as having behavioural, cognitive, expressive, physiological components [6], as well as fulfilling functions and coming with action tendencies [7]. Specific emotions have been claimed to be tied to themes of appraisals [8-10] that may occur unconsciously [7]. These appraisal have been described as “a continuing evaluation of the significance of what is happening for one's well-being”, and can be distinguished from beliefs about e.g. what is going on in an encounter [8]. A parallel distinction can be made between beliefs about the character of a product, and how it is judged to be *significant* to someone [11,12]. In the following, the term 'significance' is used to refer to “the quality of being important” [13].

From a user-centred design perspective knowledge about experiences are necessary for a holistic understanding of user requirements [14]. Some frameworks categorise and explain experiences with things based on the degree of conscious elaboration [15]. Other classifications draw on in what respect something is significant; e.g. by referring to ideas, leading to bodily sensations, having social implications or leading to cognitive and emotional reactions [14]. Furthermore, emotions with products have been explained through appraisal patterns in relation to concerns such as goals, attitudes and standards [16]. While frameworks for experiences with things typically

acknowledge a range of different antecedents such as culture and interaction, explanations are frequently presented as if products elicit experiences and some approaches such as Kansei Engineering [17] aim to model relations between specific product properties and experiences based on correlations. Current frameworks rarely seek that which the experiences is directed at (its *object*) beyond the product as such, and in many cases studies are conducted with product representations in laboratory settings. While such approaches may capture certain experiences directed at products, some concerns could be raised about their representativeness for experiences occurring in everyday situations. Studies taking the products people have in their everyday lives as a starting point [18,19] on the other hand tend to address how people value things they own because of meanings ascribed to them and typically concern dispositional relations. There is a shortage of empirical material on experiences with things [20], especially with respect to acute experiences people have with products in their every day lives. To address experiences with things in PD there is a need for developers to actively engage in identifying user requirements based on a comprehension of *what users in fact find significant in encounters with everyday products eliciting experiences*.

2 Method

This paper draws on material collected from 51 professionals from the automotive industry and undergraduate students, who as a part of various courses and workshops on design for emotional experience were asked to submit self-reports on experiences with products. The participants were prior to submitting their examples introduced to basic terminology and theories of emotion psychology. The instructions asked for examples of products eliciting positive and negative emotions. Participants were asked to document the product in photographs and text, and describe the emotion as well as the situation in which it was elicited. After anonymising the examples, the full material was used to develop coding categories based on what the participant passed judgement on in the submitted examples, see fig 1.

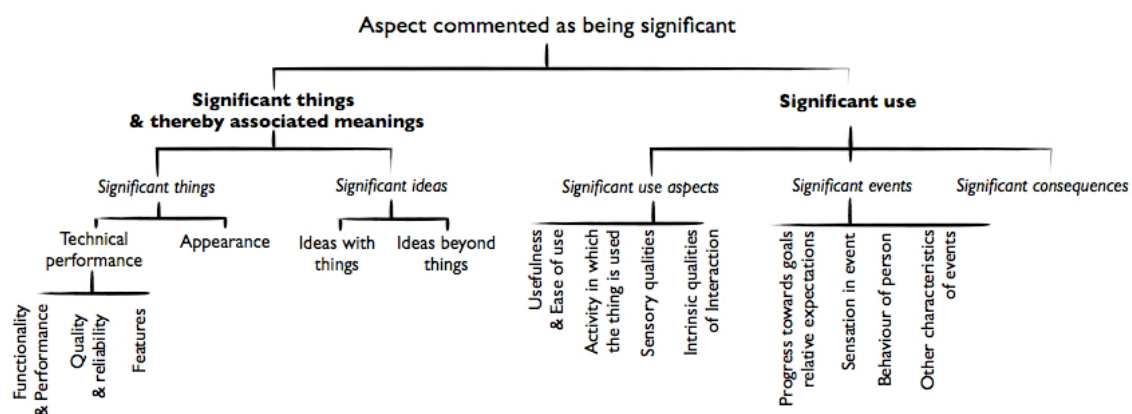


Fig 1. Aspects commented as significant in the material, used as coding categories

To ensure reliability of the coding scheme, 50 randomly selected examples were independently coded by two researchers. The coders agreed on 46 of the 50 examples and the remaining four were negotiated.. Following this, the coding scheme was applied to the full material categorising which of the aspects in fig. 1 were commented as significant, as well as which of these was most central in the example.

3 Results

The products in the submitted examples ranged from consumables to architecture, and systems for public transport but the vast majority of comments were made in relation to consumer goods. In many cases participants reported several experiences and commented on a range of aspects in relation to specific products, see example in fig 2.

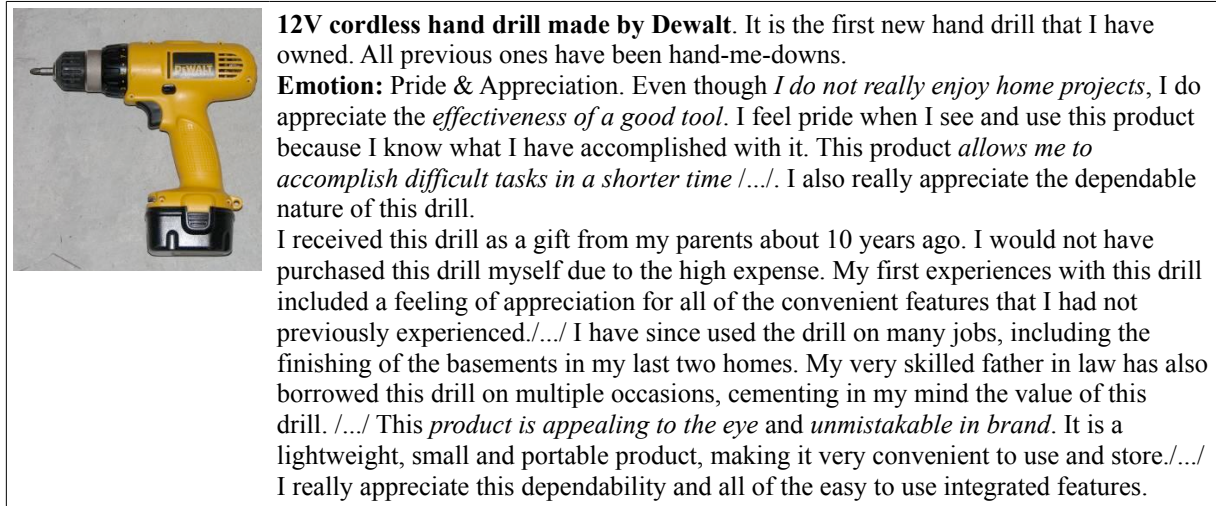


Fig. 2 Excerpt from self-report in which a range of different aspects were significant (Authors emphasis). Among the issues commented as significant in the example are the *Activity in which the product is used*, the products *Functionality and performance*, its *Usefulness and ease of use*, its *Appearance*, and as being from a certain brand (*Idea with thing*). More aspects than the ones highlighted here are commented in the self-report.

Frequently their accounts described factors beyond the product as such, e.g. goals, relations to others etc. and sometimes how experiences vary over time and situation. It was not always possible to identify any of the low-level categories in fig.1. as dominant in the accounts. However it was possible to classify the accounts as focusing on the more general categories *things*, *ideas*, *use*, *events* and *consequences*. The distribution of comments with respect to different aspects is presented in table 1, and subsequent sections present examples of accounts from the different categories describing the character of the material.

Table 1. Distribution of comments on aspects as being significant. A) Number of accounts in which judgements are passed on different aspects. As several aspects were frequently quoted as significant the total number of aspects being commented as significant is greater than the number of submitted examples. B) Number of accounts in which it was possible to identify one overarching category as most significant.

	Significant Things						Significant use								
	Thing				Idea		Use				Event				Consequences
	Functionality & Performance	Quality & Reliability	Features	Expression	Idea with thing	Idea beyond thing	Usefulness & ease of use	Activity	Sensory qualities	Intrinsic quality of interaction	Goal congruence	Sensation in event	Behaviour of person	Other aspect of event	
A) significant in # accounts	109 37%	57 19%	19 6%	124 42%	38 16%	39 13%	94 32%	55 19%	43 14%	31 10%	82 28%	37 12%	29 10%	27 9%	17 6%
B) Dominant in # accounts	110 37%				30 10%		71 24%				74 25%				0 0%

3.1 Significance of things & thereby associated meanings

In roughly half of the submitted examples the dominant focus was on a product being significant; often through its technical performance or appearance, but also in some cases by referring to ideas.

3.1.1 Technical performance

Many examples included judgements about the *functions and performance* of products, as exemplified by a comment on an universal remote control; "I was now going to be able to control the TV, stereo, DVD player, and CD player all from the same remote. /.../ in the box it looked like a wonderful product, however when I started to using the product I formed quite a different opinion. The main function of a remote is to be able to control a device with all the same functionality 15 feet from the device as if you were standing right in front of the device. /.../ buying 4 new batteries each month just to use the remote control made for quite and annoyance". Participants frequently commented on *quality, reliability* etc., see example in fig 3. However, while specific *features* were sometimes mentioned in the accounts, the participants passed explicit judgement on them only in 6% of the self-reports. Participants also in a few cases remarked about the idea of "features" either as appreciated or as something superfluous; "Pointless /.../ The 'EXTRA' features to me seemed absolutely pointless, so why should I pay more for something I don't really want".


	<p>Riding Lawn Mower The main aspect that has influenced my negative experience is the inferior quality of several parts of the mower. Emotion: Short lived anticipation and disgust. Disgust may be a strong emotion but that's exactly how I feel. I'm not sure that I have ever been more disappointed in a product. /.../ I remember feeling anticipation towards buying a new riding mower and while looking at it sitting in my garage waiting for the times when I would need it. /.../ I did not use the mower a lot the first Spring and Summer because we were growing our grass. I did begin using it to plow snow that fall and <i>soon after the engine failed</i>. /.../ I had to replace the engine with a smaller used engine (at a high cost) and eventually had <i>problems with both the plow and spreader attachments</i>. The main aspects eliciting my emotional responses were the <i>expected capability and the subsequent poor quality of the product</i>. Perhaps I should have known by the cheap purchase cost, but I ended up learning a lesson the hard way.</p>
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Fig. 3. Significant thing - Technical performance. Excerpt from a self-report focusing on Quality & reliability (Author's emphasis).

3.1.2 Appearance

Product appearance were in many cases significant to participants. Their statements sometimes concerned the beauty (or lack thereof) of the products as in the following; "When my realtor first pulled up to my future home I looked at the building and said 'Unhappiness /.../ Ugh – what awful colors!' Had it not been for his urging to have me look inside I would have just turned around left since it looked nothing like what I wanted, hoped for or imagined for my first home". In other cases the examples focused on products having a certain style or character, see example in figure 4.

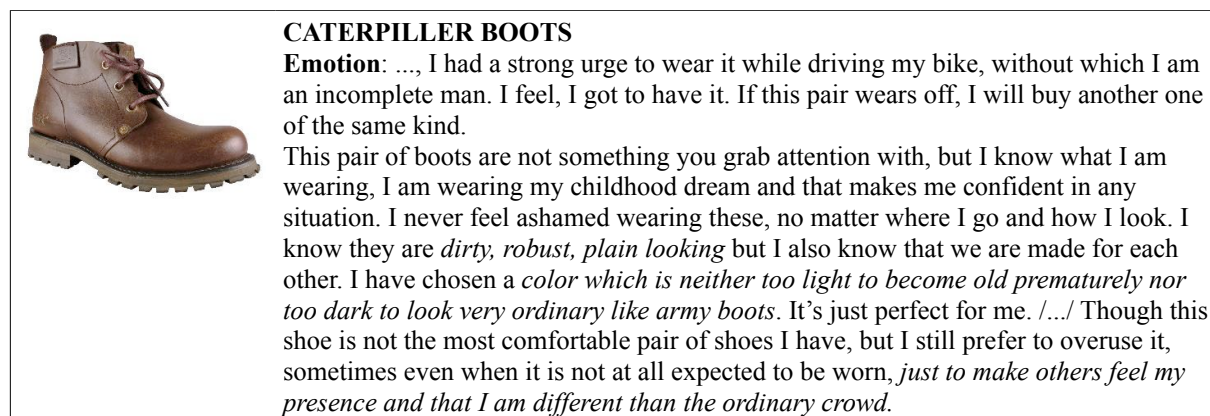


Fig. 4. Significant things- Appearance. Excerpt from a self-report focusing on visual appearance giving the product a certain character (Author's emphasis).

3.1.3 Significant ideas

Some of the self reports focused on associations and ideas as significant. In some cases these focused on *ideas about the thing*, e.g. certain brands having a reputation for providing good quality products. As an example one participant commented on a soy sauce bottle “I came to know about the design’s iconic status after sometime and liked the product even more. After reading about the product I noticed that such a design classic is a timeless as it was still available on the shop racks. Being able to use a product which was iconic made it doubly pleasurable”. In other cases participants focused on some *idea beyond the thing*, some personal memory or association. This was the case with “big sunglasses “ which one participant commented; “my feeling toward this product comes from college. It seemed as though most of the Sorority girls wore big sunglasses, /...and with most sorority girls, at least at my college, came an attitude. /.../ a shallow attitude where people pick out physical or small personality traits and judge a person”. Many of the comments about ideas beyond things concerned the participant's relation to other people. See also example in fig. 5.

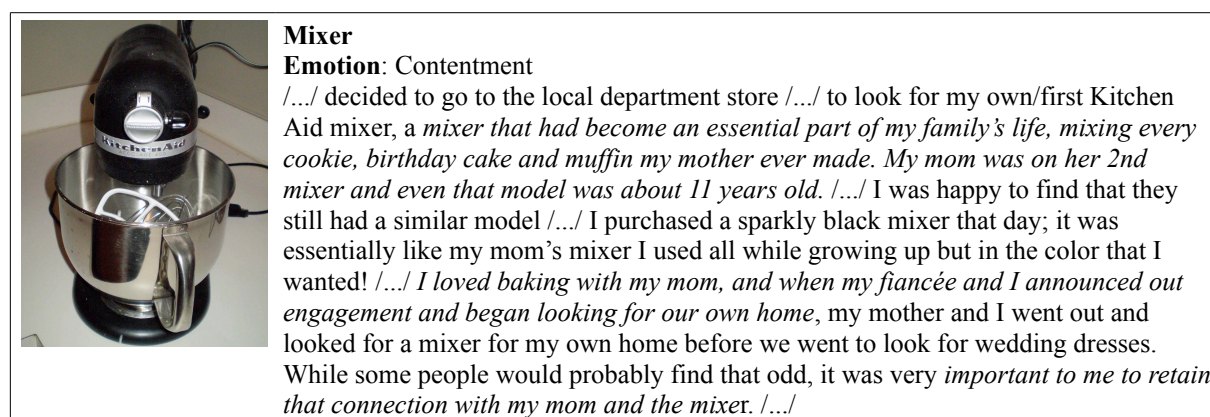


Fig. 5. Significant ideas. Excerpt from a self-report focusing on ideas beyond the product, in this case the product as a symbol of ties to a family member. (Author's emphasis).

3.2 Significant use

In roughly half of the submitted examples the dominant focus was on some aspect of product usage being significant; e.g. the product's performance as a tool supporting certain goals, or the use and interaction with the

product being intrinsically pleasant or unpleasant.

3.2.1 Usefulness & Ease of use

The participants submitted several examples where things as such were less significant than what it enabled them to do, i.e. the product's *usefulness* for meeting various practical or social goals. Participants also commented on *ease of use*. In some cases their comments were positive as in the following quote; “I realized how easy the iPod is to use and navigate. It makes the experience very enjoyable”. More frequently however, participants made negative comments on products they found difficult to handle or understand. See examples in fig. 6.

Soft contact lenses

Emotion: Excitement to be able to wear shades.

I am using spectacles from the age of 12, at times I really get irritated with it and wanted to throw it away, but it's an integral part of my body. *I wanted to wear sunglasses like all my other friends*, but couldn't fulfil my desire; whenever I tried I get blurred and dark vision. I was excited to know about soft contact lens and the flexibilities it provides.

It is basically my desire for other things (*wearing sunglasses and playing outdoor games like cricket and soccer*) that dragged me closer to this product. I know that my vision is not correct, and can't really get rid of my glasses. But the *urge to look normal without any glasses and still performing at my best* made me try out this product at least for once. When I saw a new myself in the mirror who is more close to nature and confident as well. It *allowed me to wear sunglasses, full helmet without any hassle, sleep with my face down on the pillow and lot more*. This flexibility which I have been missing since the age of 12 cannot be matched.



Paper towel dispenser

Emotions: Frustration, Disgust

This paper towel dispenser seems to be designed to save paper, since only one sheet can be pulled at a time. Also, there are instructions at the bottom of the product showing how the paper towel needs to be pulled. My thinking is that *any paper towel dispenser that needs instructions is bound to elicit negative emotions*. This is indeed the case because *if the directions are not followed, the paper towel gets stuck inside the dispenser and the emergency feed knob must be used to access the towels*.

Why should paper towel dispensing need specific directions to assure the task is completed correctly? Why is an emergency feed knob required unless the design is prone to error? It disgusts me that the design needs a back-up method because the main function is prone to failure (too many times for me to even count). I get frustrated when I have to turn to the emergency knob.

Fig.6. Significant use. Excerpt from self-report focusing on usefulness for meeting goals, some of which are closely tied to avoiding undesirable consequences that the participant had lived with a long time (top). Excerpt from self-report focusing on and ease of use (bottom). (Author's emphasis)

3.2.2 Activity in which the product is used

Many examples focused on the pleasantness or unpleasantness of activities in which products were used ; “I was responsible for putting this LEGO product together since the pieces and instructions were too advanced for a small child (the product use age minimum is 8 years). I spent 4+ hours deciphering, reviewing and following the instructions in order to assemble the products. By the end of this endeavor, I had a headache, achy eyes and was extremely frustrated. Also, after very slight play with the assembled toys, various pieces became easily detached requiring me to reassemble them. This 'breakage' continues to happen anytime my son plays with these toys”.

Frequently household chores such as doing the dishes, shovelling snow or cutting the grass were frequently commented as undesirable musts, whereas leisure activities were commented in more positive terms. See fig 7.

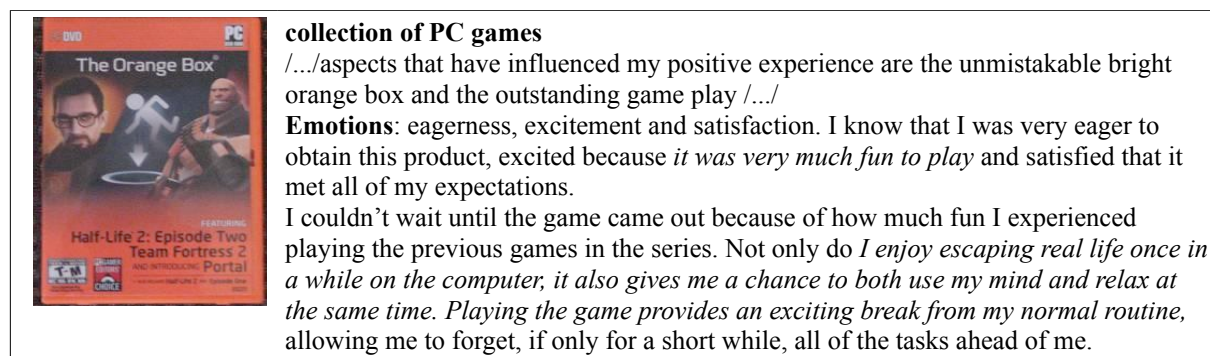


Fig. 7. Significant use. Excerpt from a self-reports focusing on the pleasantness of the activity in which the product is used. (Author's emphasis).

3.2.3 Sensory qualities and intrinsic pleasantness of interaction

Participants' self-reports sometimes concerned interaction as such; e.g. intrinsic pleasantness of sensory qualities such as textures of surfaces etc. or other bodily experiences, see fig 8. This was exemplified in relation to a syringe; “There is a long, thin metal point at the end of a plastic tube. /.../ There have been several incidents where I feel extreme pain when the medication is injected into my body /.../ The sharp needle point and liquid in the tube make me think of the burning sensation that is felt when the liquid is pushed through the needle and into my body”. Also more complex aspects of interaction was commented. In many cases these comments concerned things that gave the person a sense of capability and control, but where the interaction seemingly becomes an end in itself.

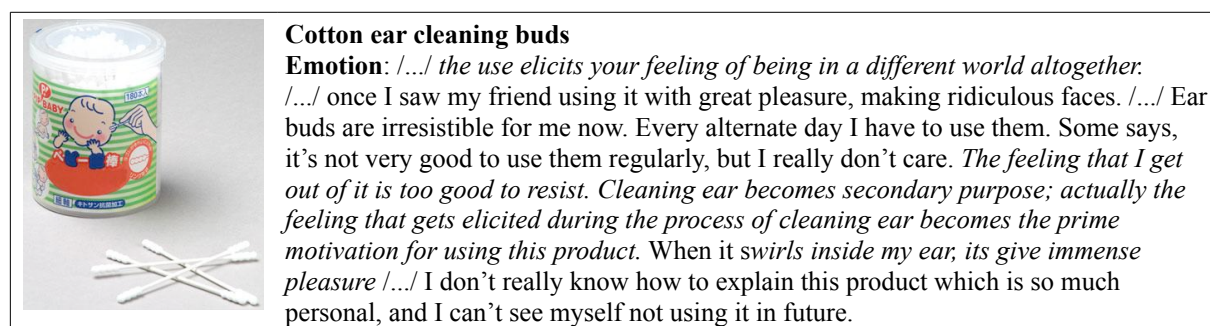


Fig. 8. Significant use. Excerpts from a self-reports focusing on interaction as intrinsically pleasant. (Author's emphasis).

3.3 Significant events

In a substantial part of the submitted examples specific situations and sequences of events were more central than products. What was significant in these were *the behaviour of actors* or *specific sensations*, but most frequently the extent to which the person made *progress towards goals* beyond expectations, see fig. 9. As an example a participant described emotions with a car battery “frustration, annoyed, stressed, irritated, embarrassed” providing the following explanation; “I was going to meet my buddies and the car is completely dead. Had to push it out from the garage myself in a slight uphill, take out start cables etc. I went to town and parked, when I wanted to leave my friend had to come with his car and assist me in the middle of the town square”. While the car battery plays an important role in this event; the person is more concerned with his goals.



Designer Purse

Emotion: Happiness

While out shopping with friends at a local department store we were all stopped our tracks by *a designer purse that we all immediately feel in love with*. /.../ it was just under \$370 dollars and *none of us decided that we had that kind of money to spend on a purse* /.../ That purse remained in the stores for nearly a year until it was replaced /.../ on vacation my husband and I decided to pull into the outlet/discount mall /.../ I walked in there and found that they had one (just one) of the purse that we had seen in the normal retail stores in the color I wanted. It was marked down to a much more affordable level and I bought it on the spot!

/.../ my friends and fellow graduates/.../ could spend their money on expensive things like fancy cars, jewelry or purses. I /.../ was always the one choosing to buy the less expensive items or styles since I wasn't making the same amount of money as my friends. When I walked into the outlet and saw the purse /.../ I was so excited and happy. I grabbed that purse so fast the sales people looked at me like I was crazy! I bought the purse and left the store thinking to myself 'Ooohhh, my friends are going to be SO jealous!! I have the purse that they all wanted!!!!' Don't get me wrong, I love the purse and I wanted it for myself more than just to show it off to my friends, but believe me that was a great feeling too.

Fig. 9. Significant events. Excerpt from a self-report focusing on progress towards goals beyond expectations. (Author's emphasis)

Frequently participants commented on their relations to others, and in some cases the *behaviour of people* was in itself significant. This was exemplified in relation to handsfree sets for mobile phones: “On multiple occasions I've encountered individuals who are /.../ they are easy to avoid when using the phone but when using a hands free device you cannot always tell that they're on the phone and recognize them as a risk. I'm annoyed by people walking and not realizing they're about to bump into someone, about them just starting to talk as you walk by (forcing you to question if they are talking to you) and they appear often as crazy vagrants talking wildly and animatedly into the air”.

3.4 Significant Consequences

Participants also provided examples of products that played a significant role in defining who they were, or had considerable consequences for their lives, e.g. someone's first house allowing them to provide shelter for their family. Sometimes things or strong experiences were described as having consequences that extended beyond the use of the specific product, e.g. an event in which too much wine had been consumed giving rise to a very strong aversion to wine in general. See also fig. 10.



Elevator

Emotion: Fear

On the campus of Tuskegee University I was on my way to class. I was going to the 3rd floor of the mechanical engineering building when the elevator I was on got stuck. We were on that elevator for a total of 30 minutes. *Because of that experience I am hesitant to get on elevators or anything that is confined to a small space.*

Fig. 10. Significant consequence. Excerpt from a self-report describing a consequence beyond use. (Author's emphasis)

4 Discussion

The results indicate that experiences *with* things are by no means limited to experience *of* things. In about half of the accounts use and events were found to be more significant than things as such, and only in a small fraction of the self reports did participants focus on specific product features. See table 1. Rather participants shared comments on how a range of different aspects, some which may potentially be addressed in PD.

Things, use (or at least activities) and events are antecedents of any experience with a product. However, what is perceived as significant may vary over time and situation. Even if a thing is present and has some bearing on an event, it is not necessarily attended to by someone who is concerned with more urgent matters. Product attributes such as colours, shapes, material etc. are important in constituting a product. However, to a person whose concerns are somehow affected by the product in a specific event they may be less salient than more complex qualities such as functions, appearance etc. According to the self-reports the *significance of things* sometimes lay in their technical performance or their appearance, but also in referring to significant ideas. Furthermore, things are often important through their consequences and a user may react to or pass judgement on the *significance of use*, e.g. the activities in which the thing is used, the products' usefulness and usability, or the intrinsic pleasantness of interaction. In other cases experiences occur in *significant events*, where progress towards goals relative expectations, peoples' behaviour etc. may also serve as the object of experiences.

It is relevant to consider the range of antecedents, and objects of experiences brought forward compared to how experiences are explained in frameworks used in the field. The important antecedents are sometimes taken to be a person and the product. Approaches such as Kansei engineering [17] focuses on how discrete features of a product correlate with experiences. Excluding antecedents having to do with situations and use from analysis such approaches could only in part capture or explain experiences such as those described in the self-reports.

An alternative can be found in the product emotion model [18] which instead emphasises the person and his or her appraisal of products in relation to concerns. However, neither of these frameworks puts much emphasis on the object of experiences, or how products are significant under certain conditions. Compared to frameworks limited to experiences directed at and elicited by products the material described in this paper took another starting point and unit of analysis but indicate that experiences with things to a great degree are situational.

The range of different reported experiences and antecedents may in part be a consequence of the data collection procedures and the distribution of comments is not necessarily representative for all experiences with things as the data collection required participants to verbalise explanations retrospectively. However, as participants repeatedly brought up the same factors the categorisation in fig. 1 can be assumed to reflect issues that are in fact significant to people in encounters with everyday products eliciting experiences.

Looking at the character of the material, participants frequently described a range of factors beyond products, e.g. long term aspirations, social relations, how desires had been shaped in their childhood etc. They also frequently commented on several different issues in relation a specific product or event, and often reported both dispositional and acute evaluations of these. It is likely that a person has a range of different experiences with a thing, and that these may vary with time and situation. As people do not necessarily think of their experiences in terms of discrete categories sensations, concerns, appraisal, emotion etc. may blend in an ongoing process in which the person engages with the world. For explanatory purposes it may be necessary to take into account a wide range of antecedents and draw a somewhat more complex framework such as the one proposed by

Hassenzahl [11]. According to this model users perceive a products' features, constructing an apparent product character. This in turn leads to consequences in terms of judgements about the product's appeal, emotions and behaviour moderated by the particular usage situation. However, while this model acknowledges situations as important antecedents, it is concerned with how experiencing a product will lead to judgements about consequences and emphasises things rather than use or events as objects for experiences.

From a PD perspective it would of course be desirable to find explanations to experiences in products, not least as product developers need to make decisions on functionality, features, properties etc. However, looking at the range of factors serving as objects of the experiences reported by participants, and the explanations they put forward in terms of e.g. social relations, goals being supported or hampered, events, practical consequences etc. there is a need to grasp a wider range of antecedents. In order to arrive at a more comprehensive understanding of user requirements regarding experiences there is a need to seek explanations beyond 'stimuli – response' like patterns between on the one hand products, and on the other emotion.

Some antecedents of experiences with things may be difficult to anticipate. Given the material submitted by participants some questions can also be raised regarding emotions as a goal for design. Someone may very well pass judgement or hold a dispositional affective relation to aspects of products. Emotions on the other hand, are by nature brief, idiosyncratic, shaped by issues such as affective dispositions, mood etc., and are most importantly situational [7]. Desmet and Hekkert describe how also concerns may be situational, and write “in order to understand emotional responses to human-product interaction, one must understand the users' concerns given the context in which he or she interacts with the product” [21]. It is also possible to take the reverse perspective; in the words of Frijda “Emotions point to the presence of some concern” [22]. They may be as relevant to PD from this perspective, indicating concerns or something being significant which can be taken as a foundation for requirements specification. A focus on needs have been argued to be an alternative to seeing emotions as an objective for design [23]. Perhaps the nature of the experiences per se, and whether they take the form of innate reactions or conscious judgements are in some cases of secondary importance to what is being judged as significant. The concrete experiences someone has cannot be prescribed, but the conditions for their elicitation can in some cases be addressed, it is possible to “scaffold” for experiences [24].

Addressing the significant aspects of things and use would affect the propensity for something to elicit reactions also in specific events. To adapt things to their users it is desirable to identify a comprehensive range of requirements, and it may be possible to scaffold for significant use and events as well as the significance of things. However, these imply somewhat different objectives, and different aspects to be designed. The *significance of things*' technical characteristics can be addressed by identifying, meeting and exceeding expectations [25]. Things can be designed with respect to visual appearance, addressing aesthetics as well as product semantics and semiotics [26,27] i.e. products communicative functions [28], identifying explicit and implicit cues that may contribute to certain associations [29,30]. Meanings and associations that are less tied to a product's embodiment may be more difficult to prescribe, but could give valuable information about a user group. The *significance of use* can be addressed, identifying user requirements [5,31]. There is however a need to get at a more comprehensive view than what has served as a basis for e.g. traditional usability oriented approaches. There is a range of different classifications of benefits sought in products, consumptions values etc. [32,33]. While it may prove difficult to design for general values, such frameworks may provide a starting point

for identifying more concrete requirements. There is also an increasing body of literature on intrinsically pleasant interaction [34-36] as well as sensory qualities [37]. Designing for the *significance of events* may pose other challenges. Certain events such shopping, product unpacking etc. can be anticipated, and designing for e.g. services may take the form of staging events [38,39]. The *significant consequences* something has beyond product usage can be considered to the extent that they are induced by a specific product or system. However, life-altering events may be personal and beyond the control of PD, but may provide valuable information about the habits and values of a user group.

To conclude, studying the various ways in which things may be significant to people may be one way of capturing a comprehensive range of user requirements. In addressing them the goal needs not be limited to making people react, but can encompass enabling them to act with respect to a range of different goals.

5 Conclusions

Users' experiences extend beyond products. While the physical characteristics of products are important as antecedents, they are not always the object of experiences. Experiences *with* things extend beyond experiences *of* things. Experiences with things may take as their objects a wide range of different aspects. They are likely to depend on a wide range of different antecedents, some of which may become more salient under certain conditions, and as not all antecedents can be anticipated or prescribed the extent to which experiences with things could be designed is limited. In order to create things that contribute positively to users there is a need to understand the ways in which things matter to people, possibly taking the significance of things, use and events as a starting point in identifying user requirements and scaffolding for experiences.

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